MLVW

MEDIUM LOGISTIC VEHICLE WHEELED KITTING SYSTEM

Canada

INTRODUCTION

Note:

Measurements are given in metric units based on the International System of Units, with Imperial measurements in brackets.

Cette information est disponible en français.

The Canadian Department of National Defence Medium Logistic Vehicle Wheeled Kitting System

The Canadian Department of National Defence has designed and produced a military vehicle kitting system for use with its family of 2 275 kg (2 1/2 tn) Medium Logistic Vehicles Wheeled (MLVW).

After reviewing systems used throughout the world, the concept of a standard prime mover combined with easily mounted kitting components to provide maximum operational flexibility was adopted for use by the Canadian Armed Forces.

In addition, the system can be easily transported by sea and rail, airlifted by fixed-wing transport aircraft, and slung from helicopters.

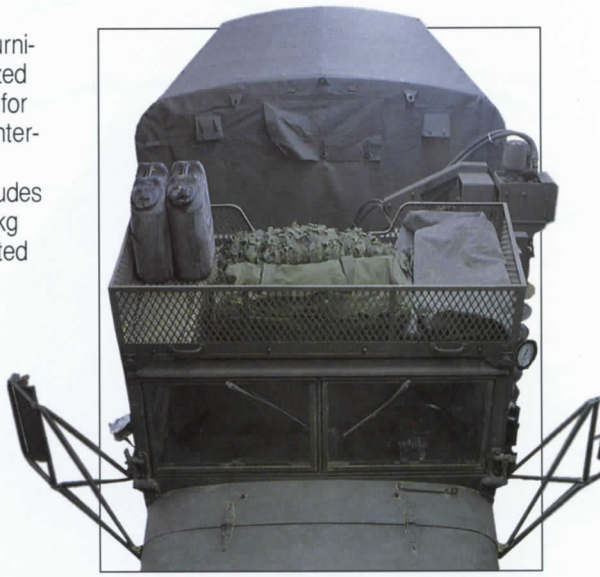
Major components include demountable hard-walled shelters, security screen enclosures, and cargo bodies with bows and tarpaulins. For additional storage, a demountable roof rack is also available.

To meet demanding and wide ranging military requirements, a large number of specialized kit configurations have been developed.

Mounting hardware and modular furniture components have been standardized throughout the different configurations for ease of logistical support and system interoperability.

The MLVW kitting system also includes trailers of 1 350 kg (1 1/2 tn) and 2 275 kg (2 1/2 tn) capacity which can also be kitted for special requirements.

A detachable roof rack is available for increased storage capacity.



General Purpose Shelter.

Security screen with fitted tarpaulin.

SPECIALIZED KITS

The Specialized Kits: a wide variety of vehicle and trailer mounted configurations, each completely equipped to meet the most demanding operational requirements

The modular system of design allows for considerable flexibility in meeting operational requirements as evidenced in the following descriptions of specialized kits. (Page 14 provides a listing of the kits presently in the MLVW system.)

Wheeled Vehicle Repair Shop

Designed to support field maintenance activities including engine overhaul work on wheeled vehicles, this shop has specialized repair equipment such as a valve grinding machine, a valve guide and seat installing machine, and a parts cleaning bath mounted under a laminated maple workbench.

Metal storage cabinets provide storage for small parts, tooling and various vehicle test equipment. Overhead cabinets store all necessary technical publications. Storage space is also provided for personal kit and other items.

Instrument shelves, with tie-down straps, provide safe stowage of instruments and tools. Standard items such as rifle brackets, first aid kit, eyewash station, and a fire extinguisher are all located for easy access.

Field Engineering Section Vehicle

This vehicle provides transportation for a section of army field engineers and for their stores and equipment.

Used with the extended wheelbase truck (M36), it features a hydraulic power system complete with an auger permanently mounted behind the cab and other hydraulic field engineering tools stored underneath the cargo box.

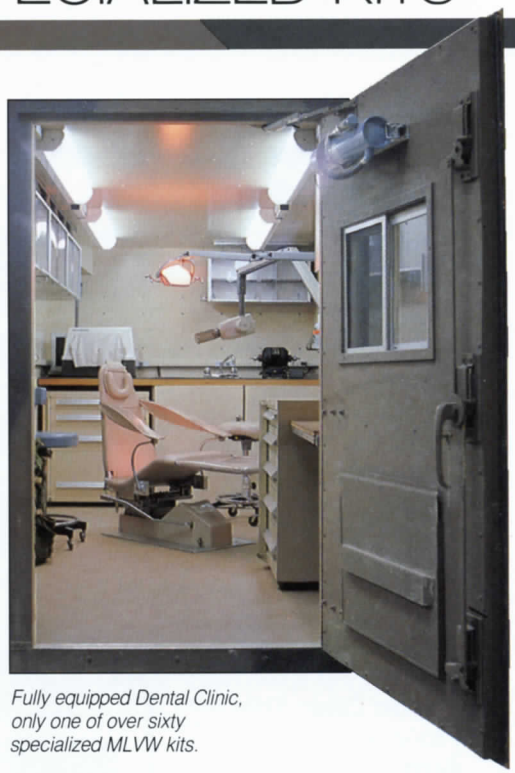
The heated troop carrying and general stores area at the rear is enclosed by security mesh and tarpaulin with specially designed doors for emergency exit. Specially designed personnel benches also provide for the storage of section tools and equipment.

A radio set is installed for field communications and for intercom between the cab and the troop carrying area.

Dental Clinic

This kit is equipped with all facilities for comprehensive dental treatment in the field. Based on the extended wheelbase truck (M36), the 4.3 m (14 ft) shelter includes sufficient equipment to carry out diagnostic, surgical and restorative dentistry.

Major items include a dental chair and operating unit, a complete X-ray system, a full range of dental instruments and equipment, a pressurized hot and cold water system, and a small refrigerator. The shelter is air conditioned for patient comfort.



Fully equipped Dental Clinic, only one of over sixty specialized MLVW kits.

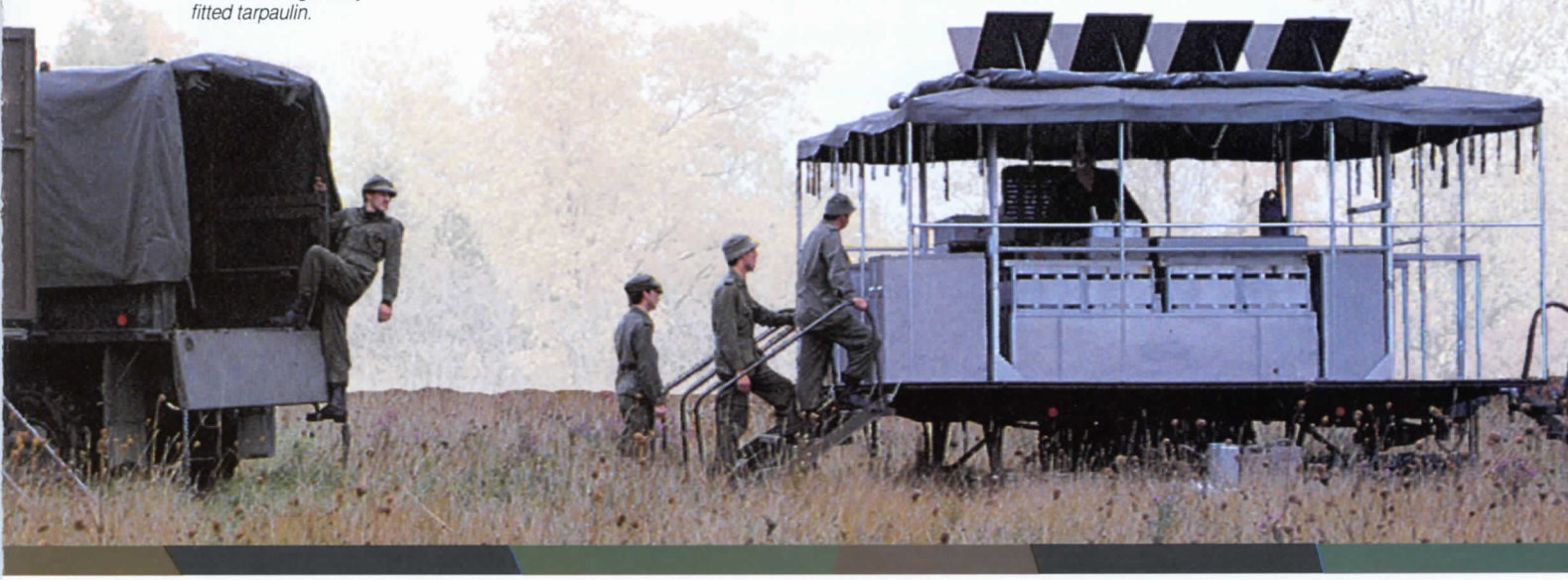
Field Kitchen Trailer

This self-contained system provides fresh ration field cooking facilities for up to 200 soldiers. Included is a serving line and two cooking or preparation counters.

The trailer is mounted on a modified M102 CDN trailer chassis and is designed to be towed by a prime mover over cross-country and highway terrain. Gross weight is approximately 2 775 kg (6 100 lb).

Standard Cargo Body with fitted tarpaulin.

Field Kitchen Trailer illustrates the degree to which specialization can be achieved on a MLVW trailer chassis.



PRIME MOVER

The Prime Mover: a Canadian built vehicle featuring ease of operation, reliability and versatility

The kitting system is based on the choice of 3 vehicle models:

M35 Standard Configuration

Cargo body:
3.7 m (12 ft)
Wheelbase:
3.9 m (154 in)
Engine:
Detroit Diesel Allison 8.2 L (500 cu in) V8 diesel producing 125 kW (165 hp) at 3 000 rpm. Maximum net torque of 475 N.m (350 ft lb) at 1 485 rpm.
Transmission:
Automatic four speed Allison MT 643
Transfer Case:
Two-speed
Axles:
6 × 6 tandem dual double reduction
Brakes:
Internal expanding drum-type with air over hydraulic assist
Weights:
Gross (fully equipped) 10 775 kg (23 730 lb)
Curb (fully equipped) 6 225 kg (13 730 lb)
Payload – cross-country 2 275 kg (5 000 lb)
Payload – highway 4 525 kg (10 000 lb)
Towed load – cross-country 2 725 kg (6 000 lb)
Towed load – highway 4 525 kg (10 000 lb)
Performance:
Without towed load
Maximum speed 90 km/h (55 mph)
Maximum grade 60%
Cruising range 540 km (335 mi)
With towed load
Maximum speed 87 km/h (53 mph)
Maximum grade 45%
Cruising range 480 km (300 mi)

Alternative Configurations

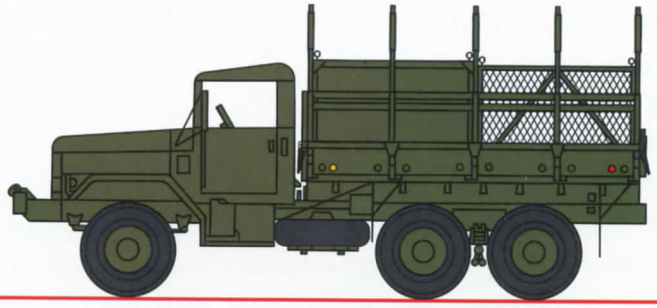
M36 with extended 4.8 m (190 in) wheelbase and 4.6 m (15 ft) cargo body.

M36C with extended 4.8 m (190 in) wheelbase, 3.7 m (12 ft) cargo body and midship mounted WAJAX PK 5800 hydraulic crane.

All configurations can be equipped with a front mounted hydraulic winch.

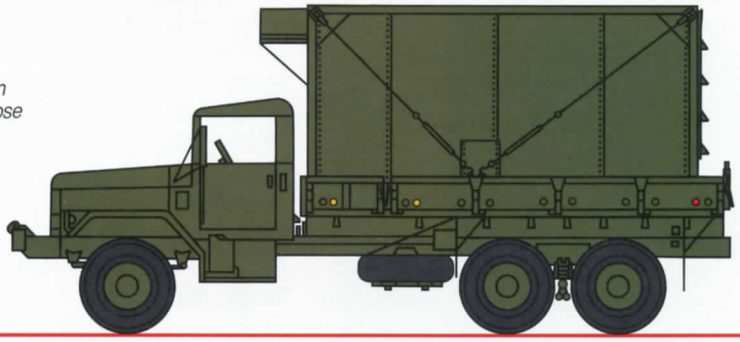
M35

M35 Standard Cargo Body shown equipped with MLVW Binned Stores kit.



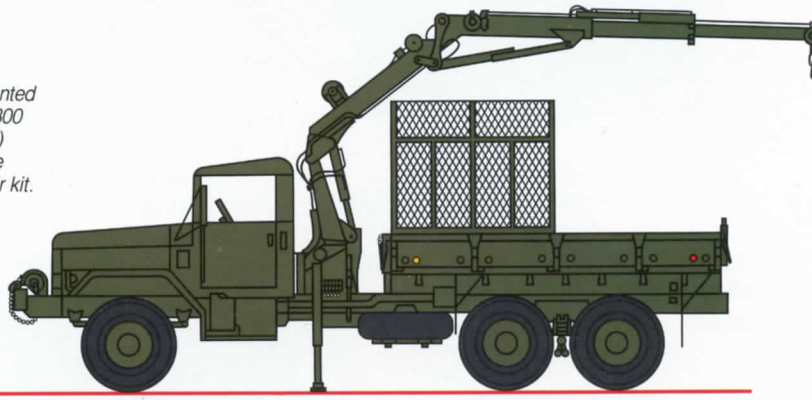
M36

M36 fitted with 4.3 m (14 ft) General Purpose Shelter.

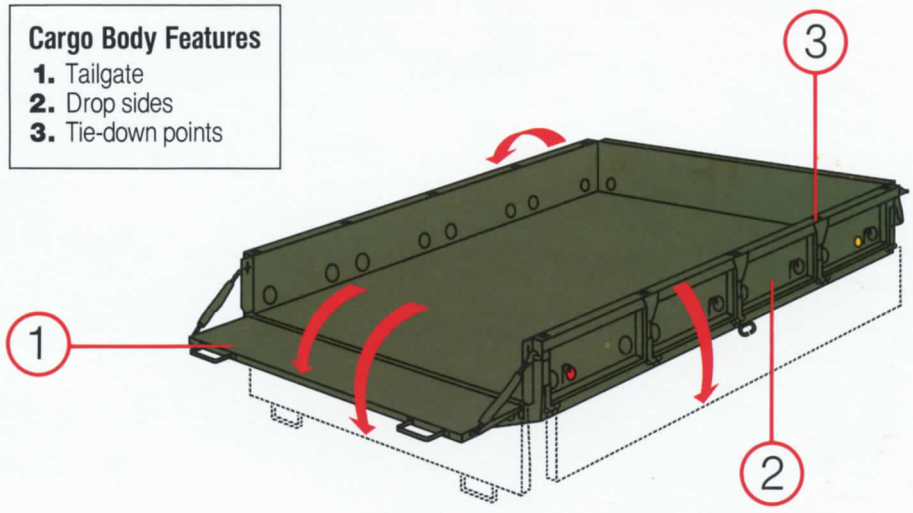


M36C

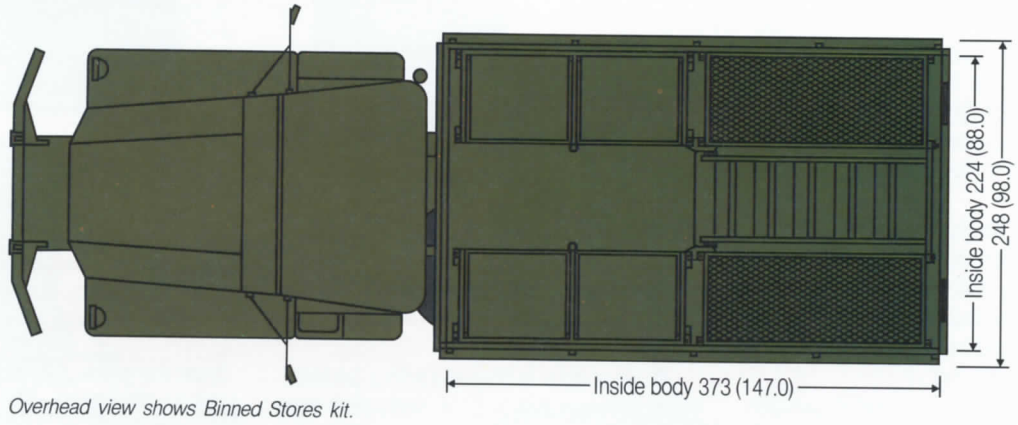
M36C with front mounted winch, WAJAX PK 5800 crane and 1.8 m (6 ft) security screen in the Vehicle Mobile Repair kit.



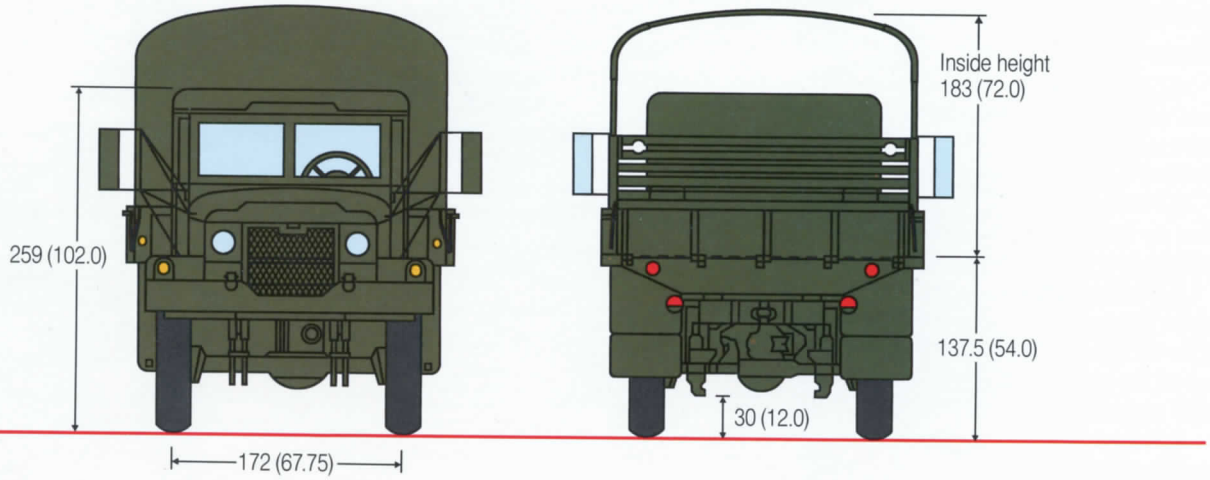
Cargo Body Features
1. Tailgate
2. Drop sides
3. Tie-down points

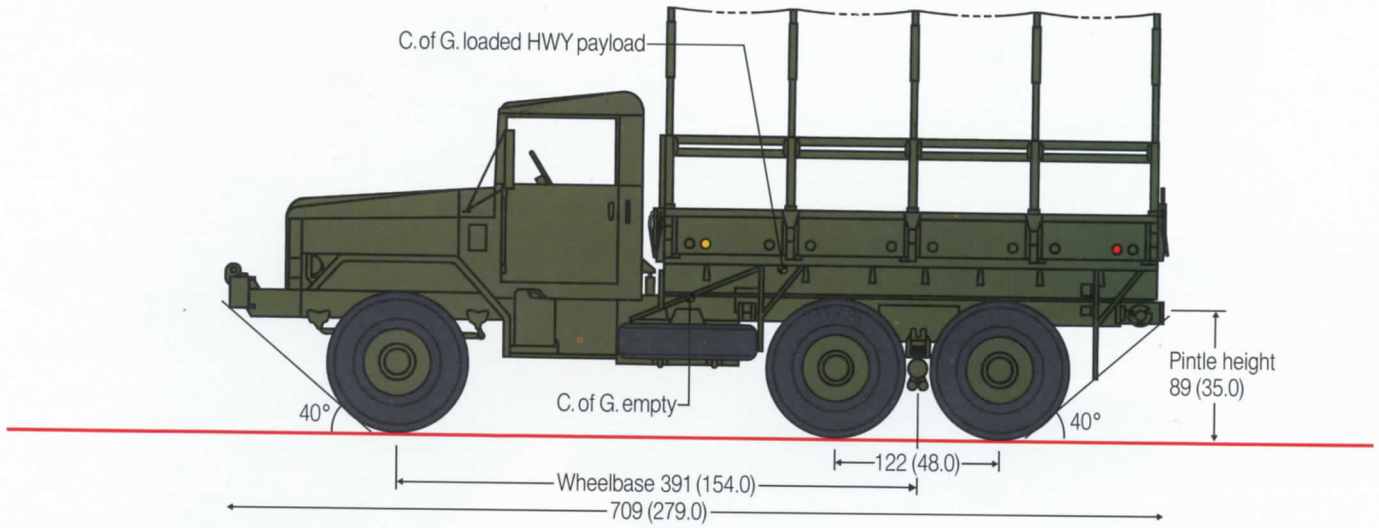


M35 Standard Configuration Specifications



Overhead view shows Binned Stores kit.





MLVW
KITTING SYSTEM

GENERAL PURPOSE SHELTER

The General Purpose Shelter: lightweight yet rugged, adaptable workspace

The General Purpose Shelter in 2.1 m (7 ft), 3.7 m (12 ft) and 4.3 m (14 ft) versions is designed for use primarily on a MLVW truck but it can also operate independently when dismounted to free the truck for other work.

It provides an easily adaptable workspace complete with heating, lighting and electrical systems. With its tie-down/lifting cable assembly and built-in skids, it is easily loaded and unloaded from the prime mover and towed on the ground.

The shelter can also be used in garrison to avoid the cost of additional tools and test equipment in a static workshop.

Exterior Shelter Features:

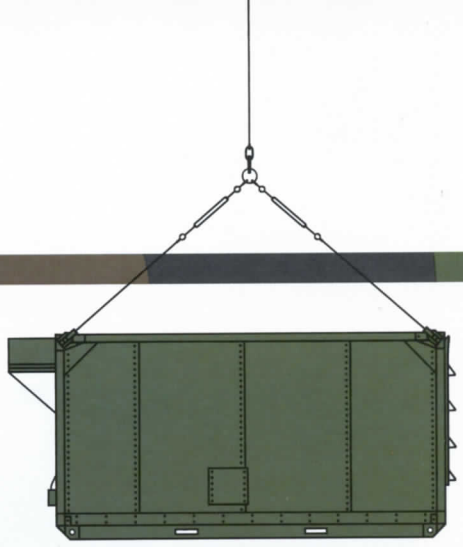
1. Lightweight, sturdy construction with inner and outer aluminum skins on structural aluminum extrusions and 5 cm (2 in) of urethane foam insulation.

2. Three large protective I-beam skids, allow for forklifting shelters on and off vehicles and for towing over short distances.

3. Tie-down/lifting rings at each top corner of the shelter act as tie-down points to the vehicle and for hoisting the shelter on and off the vehicle with its tie-down/lifting cable assembly.

4. Roof access ladder, mounted at rear, permits access to roof for erecting camouflage nets.

2.1 m (7 ft) General Purpose Shelter.



4.3 m (14 ft) General Purpose Shelter.

With built-in skids, the shelters can be easily moved by forklift or towed on the ground. They can also be hoisted using standard tie-down/lifting cable assemblies.

5. Rear door is secured with a padlock.

6. Window in rear door, securable from the interior, can be opened for ventilation and removed for emergency exit. A slide-in metal panel provides blackout security.

7. Ground rod assembly is mounted at rear of shelter.

8. Fuel can brackets secure spare fuel supply on rear of shelter.

9. Electrical input panel, at rear of shelter, provides for the connection of ac power and field telephones.

10. dc power input panel, located at front of shelter, provides for dc power connection between the prime mover and the shelter.

11. 8 800 W (30 000 Btu/hr) multi-fuel heater, externally mounted, provides hot air heating or fresh air ventilation through permanent ductwork. The heater draws its fuel from the prime mover's fuel tank and operates on 28 Vdc power.

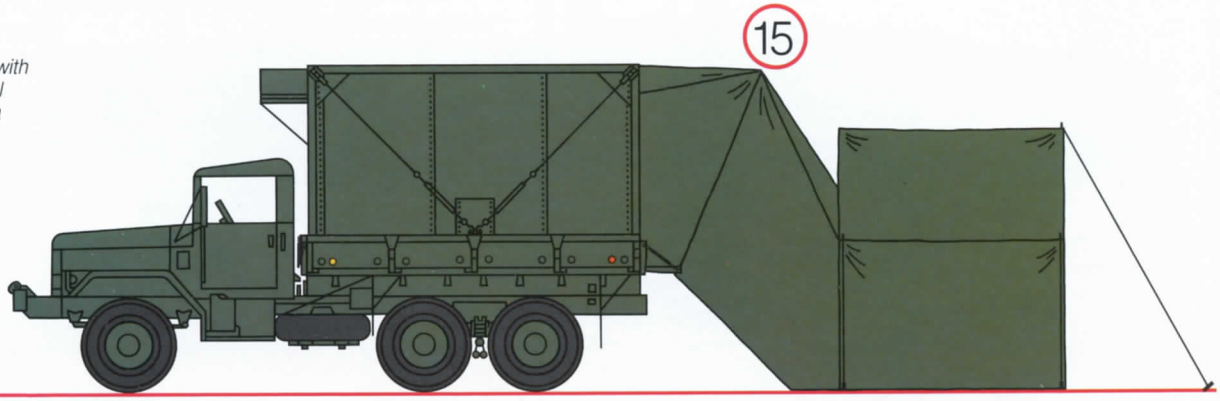
12. 5 275 W (18 000 Btu/hr) air conditioner, externally mounted, provides cooled recirculated or fresh air in the shelters when it is specifically required. The air conditioner runs on single phase 240 Vac power.

13. Exterior infrared reflective (IRR) paint, in a camouflage pattern, blends with the truck pattern. The roof is finished with non-skid IRR paint for safe footing.

14. Sturdy aluminum ladder, when attached to the truck tailgate, provides access to the shelter. In transit, it is stored under the shelter.

15. Tent interface is provided for access under backout conditions from the vehicle mounted shelter to a ground erected canvas shelter.

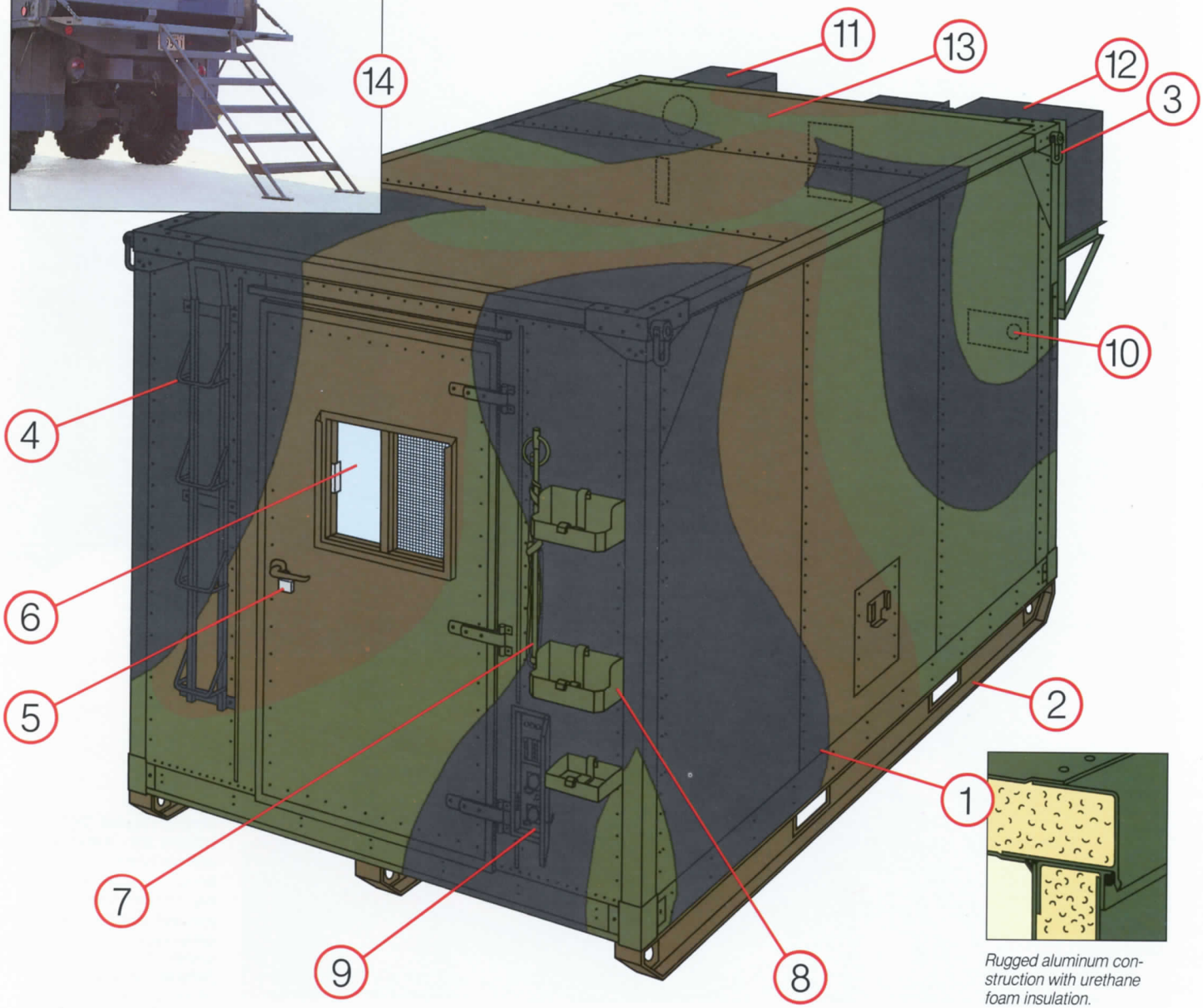
Tent interface in use with a 3.7 m (12 ft) General Purpose Shelter and a section of modular tentage.



GENERAL PURPOSE SHELTER

SHELTER DIMENSIONS AND WEIGHTS (Dimensions are taken at corner posts)			
SIZE, m (ft)	**INTERIOR, L × W × H, cm (in)**	**EXTERIOR, L × W × H, cm (in)**	**WEIGHT WITHOUT KIT**
2.1 (7)	204 (80.5) × 204 × (80.4) × 194 (76.25)	217 (85.5) × 217 (85.5) × 227 (89.4)	500 kg (1 100 lb)
3.7 (12)	357 (140.5) × 204 (80.4) × 194 (76.25)	370 (145.5) × 217 (85.5) × 227 (89.4)	770 kg (1 700 lb)
4.3 (14)	418 (164.5) × 204 (804) × 194 (76.25)	430 (169.5) × 217 (85.5) × 227 (89.4)	860 kg (1 900 lb)

Sturdy detachable aluminum ladder is a common component for all General Purpose Shelters.



Rugged aluminum construction with urethane foam insulation.

MLVW
KITTING SYSTEM

GENERAL PURPOSE SHELTER

Interior Shelter Features:

1.ac distribution box, controls the three wire single phase 120/240 Vac electrical system inside the shelter. It contains appropriate terminals and circuit breakers for efficient distribution.

2.25 amp dc regulated power supply, wall mounted, converts 120 or 240 Vac to 28 Vdc. It can also be used to charge the vehicle batteries.

3.ac wall receptacles, wired to 15 ampere circuits, are mounted in aluminum electrical channel extending around interior shelter perimeter (3 double receptacles equally spaced along each side wall, 2 double receptacles mounted on front wall).

4.ac fluorescent lights are located on ceiling, prqviding good illumination for work areas. Heavy-duty ballast ensures cold weather operation.

5.dc fluorescent lights provide short-term lighting from the vehicle battery when the ac system is not operational.

General Purpose Shelter interiors use modular furniture and hardware for flexibility in layout and application. Mounting channel, fastened into standard threaded inserts, forms the basis of the modular system. A completed kit (Wheeled Vehicle Repair Shop) is shown above.

GENERAL PURPOSE SHELTER

6. Blackout lighting system features a red fluorescent dc light which is activated when the door is opened under blackout conditions.

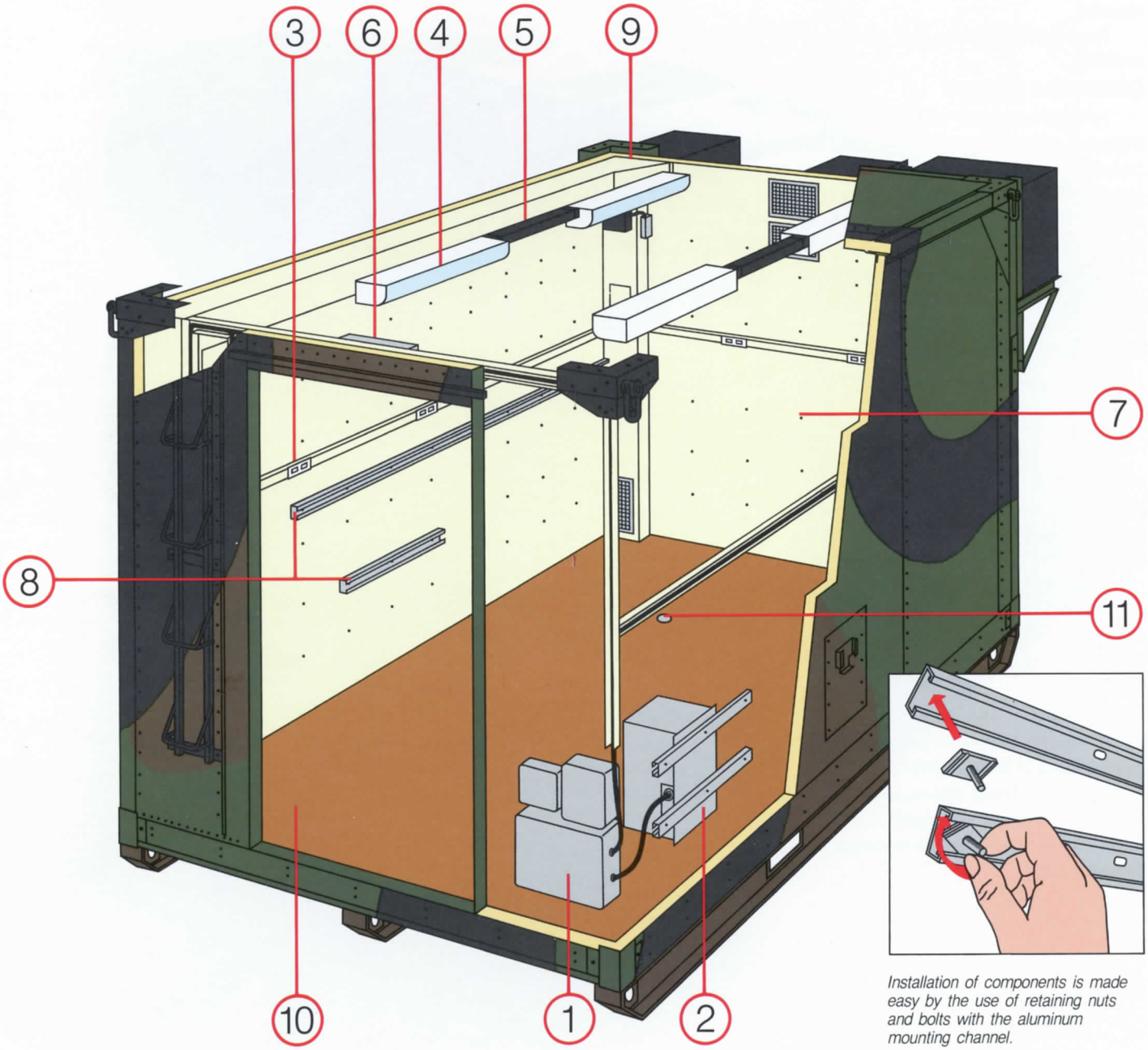
7. Mounting inserts, in standard wall patterns and mounting channel with retaining nuts and bolts, form the basis of the modular approach to furniture and hardware installation.

8. Mounting channel in standard lengths, supplied with pre-punched slotted holes, can be easily cut to size to suit the particular installation required. Additional mounting inserts can also be added if required.

9. Insulated heating and ventilation ductwork is permanently mounted to provide complete circulation throughout the shelter.

10. Floor covering of heavy-duty linoleum provides a durable and easily maintained floor surface.

11. Floor drain is installed to provide drainage during storage or routine wash downs.



Installation of components is made easy by the use of retaining nuts and bolts with the aluminum mounting channel.

SECURITY SCREEN

The Security Screen Enclosure: for a lightweight and secure cargo body work area

This component is designed for applications requiring secure space without all of the features of the shelter, and where weight restrictions are critical.

There are two basic configurations: the standard 3.7 m (12 ft) version and the 1.8 m (6 ft) version when open cargo body space is required.

Two heights and three door types are available.

Construction Features:

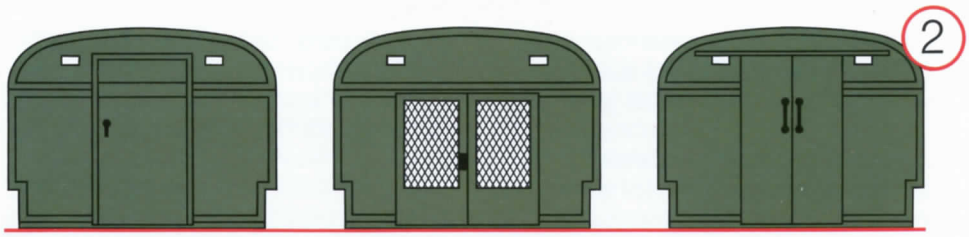
1. Interchangeable modular panels of expanded aluminum mesh are secured with over-center fasteners which permit quick assembly and disassembly. Solid front and rear panels are hinged to allow partial breakdown for air transport.

2. Three rear door panel types are available: single outward or double outward swing doors for most applications, and sliding double doors used primarily on the 1.8 m (6 ft) version where objects on the cargo deck could interfere with the swing door operation.

3. Easily removable electrical system, mounted on the mesh part of the security screen, utilizes electrical components similar to those used in the General Purpose Shelter.

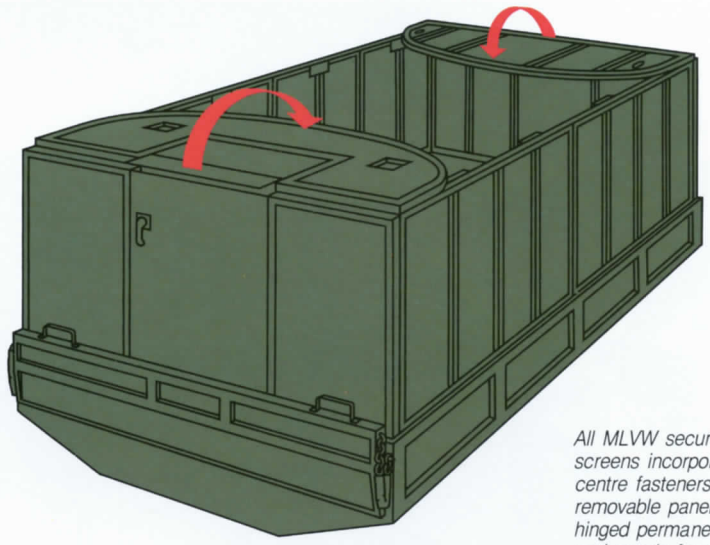
4. Optional 8 800 W (30 000 Btu/hr) heater can be mounted inside the security screen on the cargo body near the front of the screen. This is the same heater used in the shelters.

5. One-piece vinyl-based tarpaulin fits tightly over the security screen. Monotone green coating of fabric meets requirements in the visible and near infrared regions of the spectrum. Gloss is negligible. Elastic tie-downs are used to secure the tarpaulin to the vehicle.



Single swing door. *Double swing doors.* *Double sliding doors.*

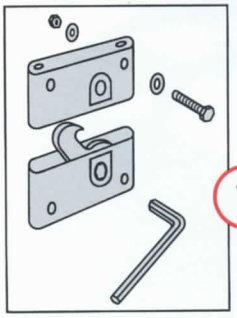
Breakdown for Air Transport



All MLVW security screens incorporate over-centre fasteners on removable panels and hinged permanent end panels for rapid breakdown to air transport mode.

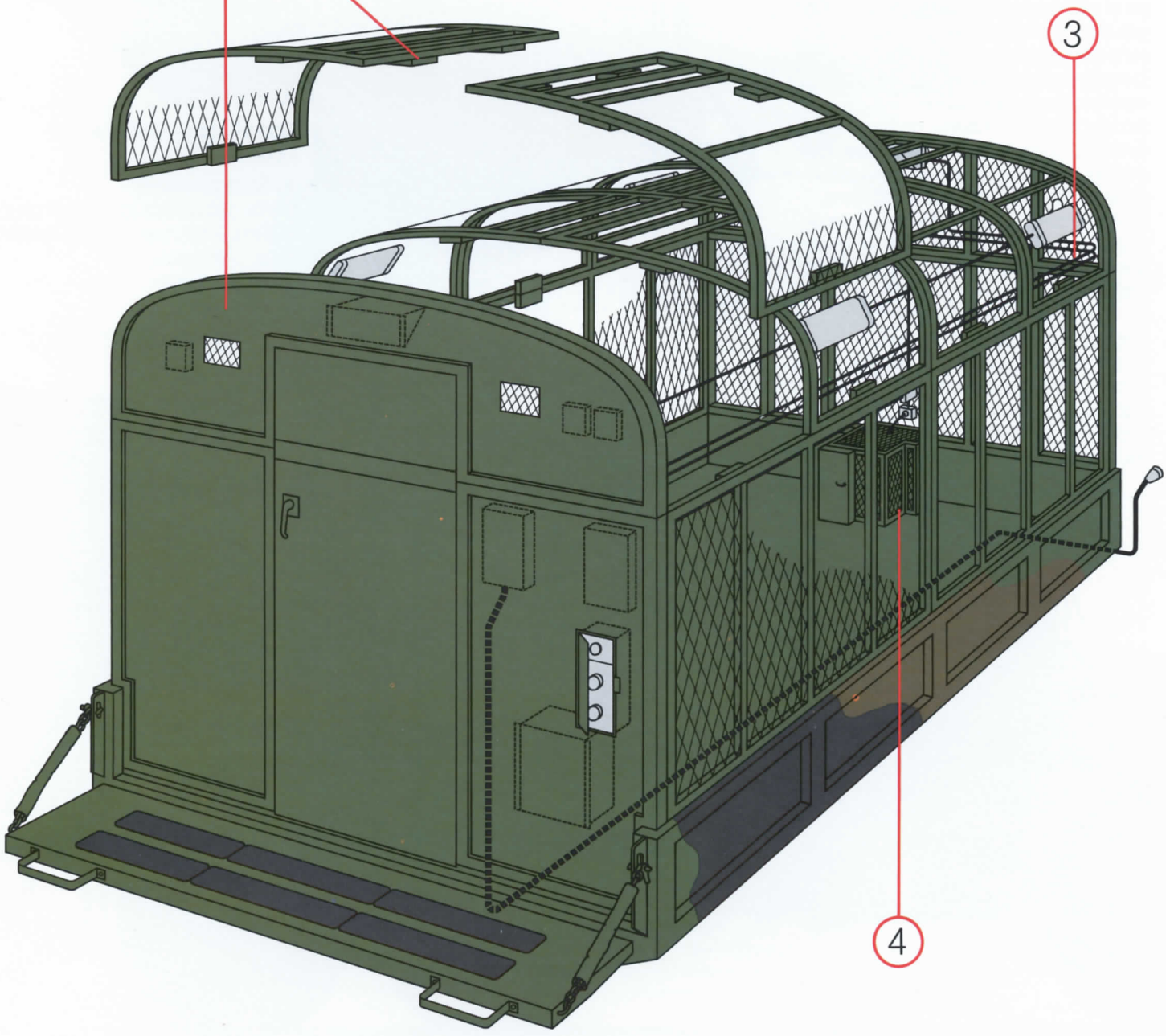
A one-piece vinyl-based tarpaulin is standard equipment with each security screen.

SECURITY SCREEN



Sturdy over-center fasteners secure removable modular panels.

SECURITY SCREEN DIMENSIONS	
SIZE, m (ft)	**INTERIOR, L × W × H, cm (in)**
1.8 (6) STD	182 (71.25) × 234 (92.25) × 185 (73.0)
3.7 (12) STD	365 (143.75) × 234 (92.25) × 185 (73.0)
3.7 (12) Raised	365 (143.75) × 234 (92.25) × 201 (79.0)



CARGO BODY

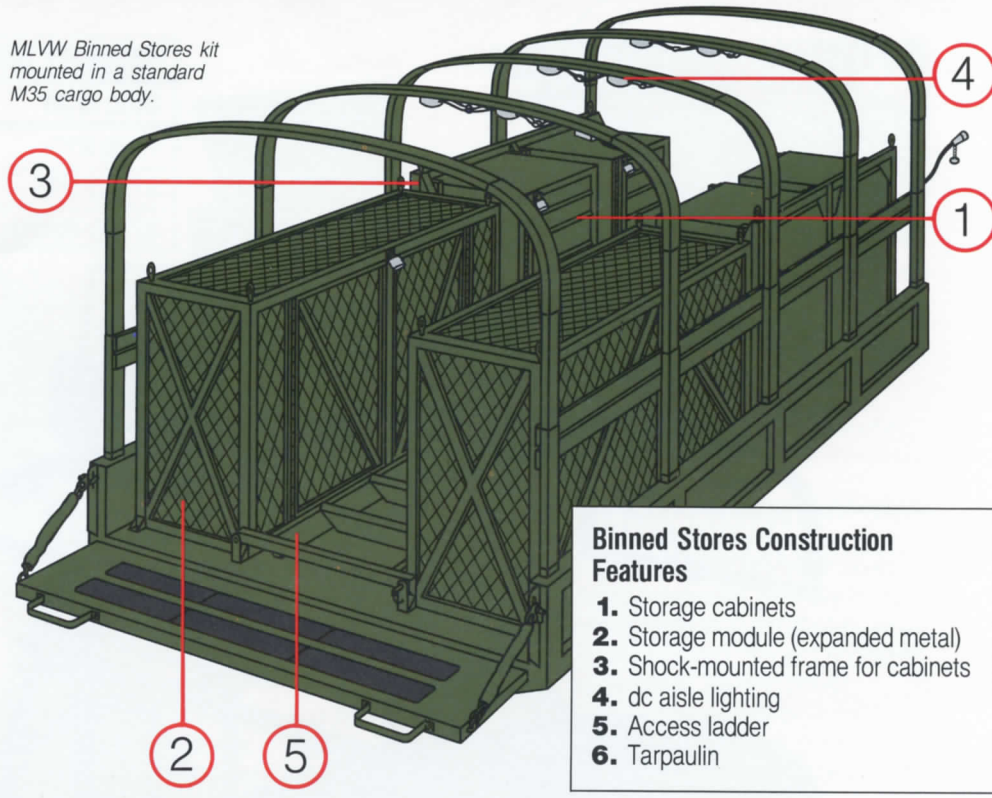
The Cargo Body: readily accepts the major kitting components

The cargo body, an integral part of the prime mover, features tailgate, drop sides, and tie-down points. It readily accepts the General Purpose Shelter and security screen as well as the standard bows and tarpaulin.

The Binned Stores is an excellent example of a kit employing bows and tarpaulin with the cargo body. They are designed to carry a large range of items in the field using specially designed storage cabinets and modules. The storage cabinets feature a modular system of drawers, partitions and dividers to optimize storage space use. They are shock mounted in frames to prevent damage to the cabinets and stored items from excessive vibration. The storage modules are used to store bulky items and feature expanded metal exterior, adjustable shelf heights, and lockable door.

This kit demonstrates the flexibility of the cargo body configuration during field conditions. It has been specifically designed for quick removal of the storage cabinets and modules by crane or forklift to convert the truck into a standard cargo vehicle if necessary.

MLVW Binned Stores kit mounted in a standard M35 cargo body.



Binned Stores Construction Features

1. Storage cabinets
2. Storage module (expanded metal)
3. Shock-mounted frame for cabinets
4. dc aisle lighting
5. Access ladder
6. Tarpaulin

The Trailer: carries electrical generator sets and general cargo

This military pattern trailer, rated at 1 350 kg (1 1/2 tn) cross-country, has been specifically designed and produced for the MLVW kitting system.

It is primarily used to carry a variety of generators for field support of General Purpose Shelters and security screened vehicles. In addition, it can be used to carry other large or bulky items.

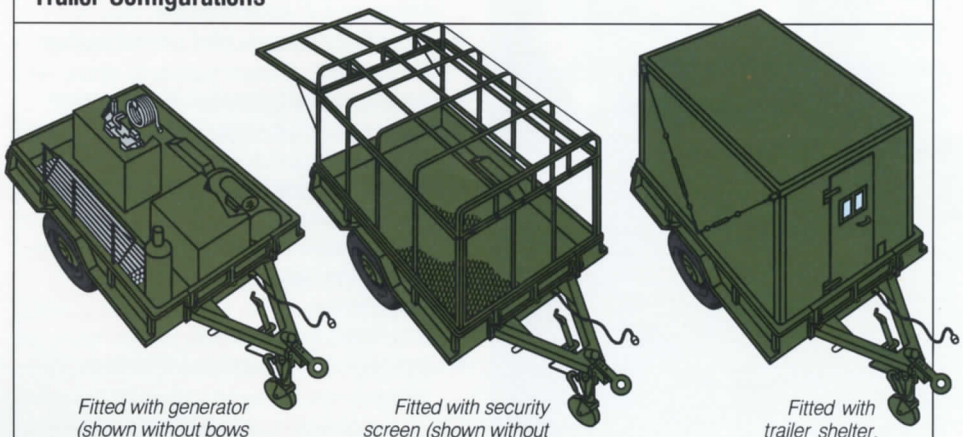
As with the prime mover, the trailer can be fitted with a tarpaulin cover, a security screen with tarpaulin or a hard shelter.

Specialized trailers, such as the Fuel Pod and the Field Kitchen Trailer described in the beginning of this publication or those listed on the following pages, are all part of the MLVW trailer family.

Fuel Pod

A 2 275 L (500 Imp gal) fuel tank, electric pump and hose reel, are mounted on a 2 275 kg (2 1/2 tn) trailer chassis.

Trailer Configurations



Fitted with generator (shown without bows or tarpaulin).

Fitted with security screen (shown without tarpaulin).

Fitted with trailer shelter.

Fuel Pod Trailer with pumping equipment.

Standard trailer with bows and tarpaulin fitted.

MLVW
KITTING SYSTEM

MLVW KITS

MLVW Kits:
a complete selection of configurations to meet a wide range of operational field requirements

- Communication Maintenance for HF, VHF, and UHF equipments
- Supporting Tactical Unit Communication Maintenance
- Crypto and Teletypewriter Maintenance
- Heavy and Small Arms Repair and Maintenance
- Machine Shop and Support Equipment
- Battery Servicing
- Guided Missile Maintenance
- General Mechanical Instrument Maintenance
- Land Radar Maintenance
- General Purpose Electrical Maintenance
- General Electronic Maintenance
- General Electronic Maintenance with Leopard Tank Supplement
- Leopard Tank Fire Control Systems Electronic Maintenance
- Leopard Tank Electro Synchro/Servo Stabilization Maintenance
- Optical Fire Control System Maintenance
- Combat Engineer Equipment Maintenance
- Vehicle Mobile Repair with heavy lift capability
- Vehicle Mobile Repair Tool Crib
- Armoured Vehicle Repair Shop

MLVW kits assist in cost effective field repair and support. A shelter workshop is shown on a M35 prime mover towing its support trailer.

MLVW KITS

- Armoured Vehicle Repair Tool Crib
- Wheeled Vehicle Repair Shop
- Wheeled Vehicle Repair Tool Crib
- Wheeled Vehicle Component Repair Shop
- Universal Tire Changer
- Heavy-duty Welding
- Textile Refinishing and Maintenance
- Aircraft Sheet Metal Repair
- Aircraft Airframe/Aero Engine Maintenance
- Aircraft Instrument Electrical Maintenance
- Aircraft Avionics Maintenance
- Aircraft Communications Maintenance
- Aircraft Radar Maintenance
- Aircraft Armament Maintenance
- Aircraft Mobile Repair
- Aircraft Safety Systems Maintenance
- Aircraft Nickel Cadmium Battery Servicing
- Binned Stores
- Field Engineering Section Vehicle
- Diving Equipment
- Erdlator Water Purification Equipment
- Topographic Reproduction Equipment
- Commanders Field Office
- Postal Field Office
- General Purpose Field Office
- Maintenance Control Field Office
- Communications Security Field Office
- Field Medical Station
- Finance Field Office
- Meteorological Station and Equipment Stores
- Dental Clinic
- Dental Laboratory
- Communications Center Equipment
- Radio Relay Repeater/Terminal Equipment
- Fuel Pod – 2 275 L (500 Imp gal) capacity with pump unit
- Field Kitchen Trailer

Contributing Companies

Advance Power Inc., Toronto, Ontario
Bombardier Inc., Valcourt, Quebec
Champion Truck Body Ltd., Montreal, Quebec
DEW Engineering and Development Ltd., Ottawa, Ontario
Les Entreprises Julien, Quebec, Quebec
G.M. Associates, Toronto, Ontario
Hovey Industries Ltd., Ottawa, Ontario
Manac Inc., St George de Beauce, Quebec
T E S Limited, Ottawa, Ontario
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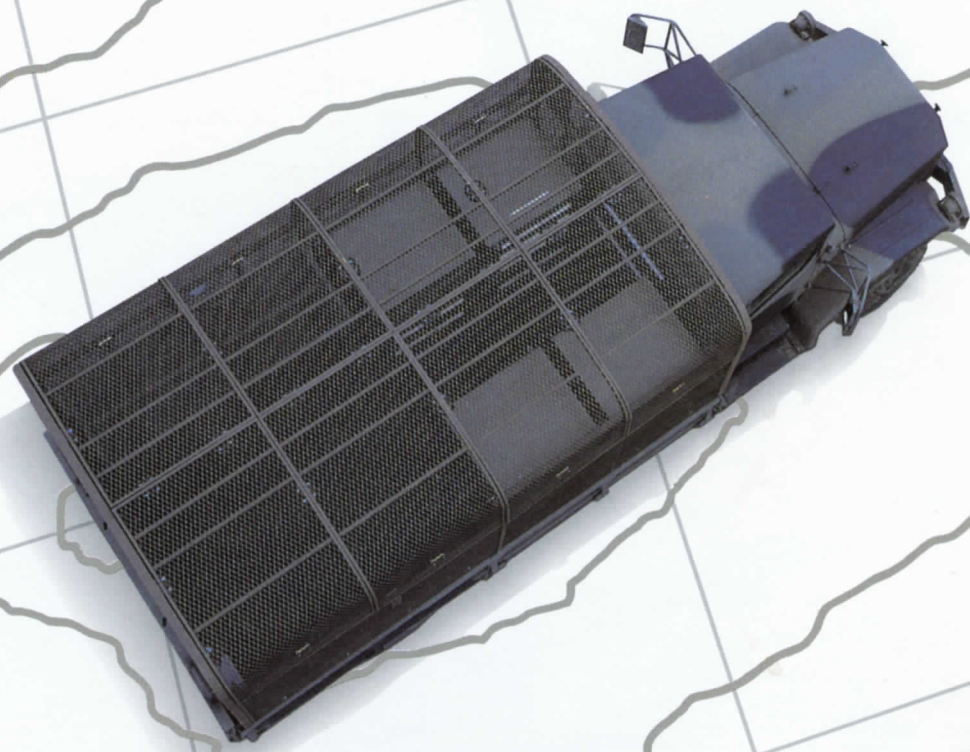

National Defence / Défense nationale

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